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PACIFIC OCEANIC FISH
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SOME NEW AMERICAN PYCNODONT FISHES

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BY

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Assistant Curator of Fossil Mammals, United States National Museum

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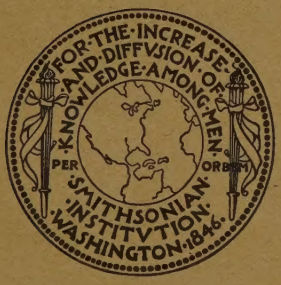
No. 2036.—From the Proceedings of the United States National Museum, Vol. 46, pages 445–449

Published December 31, 1913



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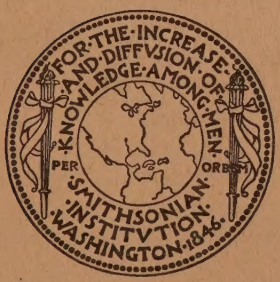

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SOME NEW AMERICAN PYCNODONT FISHES.

By James Williams Gidley,
Assistant Curator of Fossil Mammals, United States National Museum.

In the United States National Museum are several specimens representing five apparently undescribed species of Pycnodont fishes. One of these is referable to *Microdon*, a genus hitherto not known from deposits of this continent. The others are apparently referable to species of two other Old World forms *Cœlodus* and *Anomœodus*, but the latter genera have already been reported from American deposits. These specimens form the basis of the following descriptions and brief note:

1*a*

FIG. 1.—MICRODON TEXANUS. TYPE. VOMERINE PLATE, NAT. SIZE. 1. PALATINE VIEW. 1*a*. SECTION ABOUT MIDDLE POINT TAKEN FROM POSTERIOR VIEW.

MICRODON TEXANUS, new species.

Type.—Vomerine plate containing nearly all the teeth. (Cat. No. 7621, U.S.N.M.) See fig. 1, p. 445.

Paratype.—Portion of left splenial containing teeth of three rows. (Cat. No. 7065, U.S.N.M.)

Type-locality.—Hamilton County, Texas. The paratype came from near Vanderpool, Bandera County, Texas. Both the type and paratype specimens come, apparently, from similar deposits, and are probably of Lower Cretaceous age.

Description.—Size, large, as compared with *M. elegans*, the type-species; dental surface relatively broad and decidedly convex laterally, with teeth of the inner rows loosely spaced; teeth of the various rows about the same relative proportions to each other as those of *M. discoides* (Woodward), but differ from those of the latter in general form; teeth of median row broadly elipsoid, about one and one-half times broader than long; inner paired series irregularly triangular, with long axis obliquely inclined and set well within the interspaces of the median row; teeth of outer paired series much larger than those of inner paired rows,

and irregularly quadrangular; teeth of median row smooth, not pitted; unworn teeth of paired rows present shallow, apical depressions which are distinctly wrinkled.

The teeth of the splenial plate from Vanderpool, Texas (No. 7065, see fig. 2, p. 446), correspond well in size and general appearance with those of the type-specimen, while their form and wear surfaces fit exactly those of the vomerine piece. There seems, therefore, little doubt that this specimen pertains to the same species as the latter.

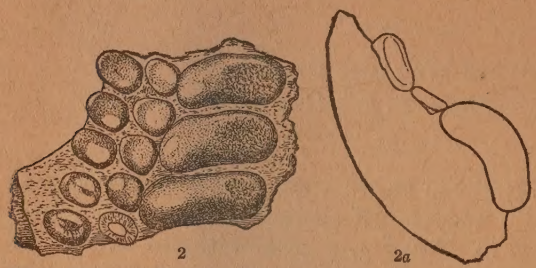

FIG. 2.—MICRODON TEXANUS. PARATYPE. PORTION OF LEFT SPLENIAL, NAT. SIZE. 2. SUPERIOR VIEW. 2a. POSTERIOR END VIEW, OUTLINE.

This specimen presents several distinctive characters. The teeth of the principal series are more than twice as broad as long, and considerably exceed the combined width of the outer two rows, but the inner half of each tooth bends sharply downward, so that only the outer half is opposed by the vomerine teeth; there are apparently no teeth inside the principal row; those of the outer two rows are nearly equal in size and but slightly broader than long; the unworn tooth of the outermost series has the characteristically wrinkled apical depression seen in the vomerine teeth.

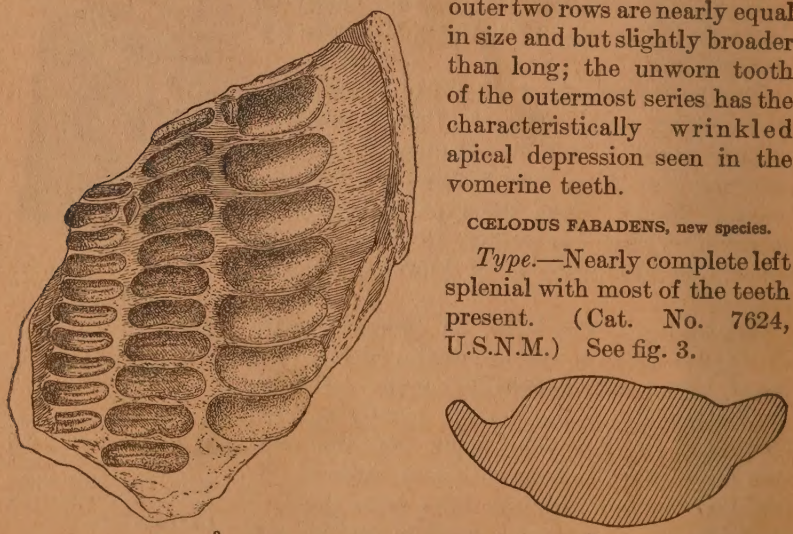

FIG. 3.—CŒLODUS FABADENS. TYPE. A NEARLY COMPLETE LEFT SPLENIAL. 3. SUPERIOR VIEW. 3a. SECTION TAKEN FROM ANTERIOR VIEW.

CŒLODUS FABADENS, new species.

Type.—Nearly complete left splenial with most of the teeth present. (Cat. No. 7624, U.S.N.M.) See fig. 3.

Locality.—Near Gainesville, Cooke County, Texas. Probably Lower Cretaceous in age.

Description.—Teeth of principal row decidedly kidney or bean shaped in form and about the size of those of the corresponding row in *C.*

cantabrigiensis Woodward, but the width of teeth of principal row is considerably less than combined width of outer two rows. Teeth of principal row without apical indentations; teeth of outer rows similar to each other in proportions, but with transverse width relatively much greater than those of the principal row; teeth of outer two rows very distinctly indented at apex with smooth or but faintly crenulate margins in the unworn teeth.

CŒLODUS DECATURENSIS, new species.

Type.—Portion of left splenial with five teeth of principal row, five teeth and two bases of the median row, and five pedicles, or tooth bases, of the outermost row. (Cat. No. 16, U.S.N.M.) See fig. 4, p. 447.

Type-locality.—Decatur, Wise County, Texas. Probably of Lower Cretaceous age.

Description.—In general proportions the splenial dentition is nearly as in *Cœlodus mantelli* (Agassiz), but the teeth differ from those of the latter in their much larger size and other important details, as follows: Teeth of principal series slightly reniform, a little more than twice as broad as long and about equaling the combined width of the outer two rows; teeth of inner row of outer series about half the size, but of about the same proportions as those of principal row and about one and one-half times wider than those of the outermost row. Teeth of outermost row proportionally much narrower transversely than those of the other rows, being nearly as long as wide; teeth of entire series with narrow apical pits having slightly crenulate borders. This species differs also from *C. stantoni* Williston in the presence of well-defined apical pits and the relatively smaller size and narrower proportions of the teeth adjacent to the principal row. The teeth of the outermost row in other American species are not known to me, and are represented only by their bases as preserved in the type-specimen of the present species. These show the teeth of this series to be not more than half the width of those of the middle series. The specimen resembles in some respects the one described by Cope, *C. browni*,[1] but, comparing it with Cope's

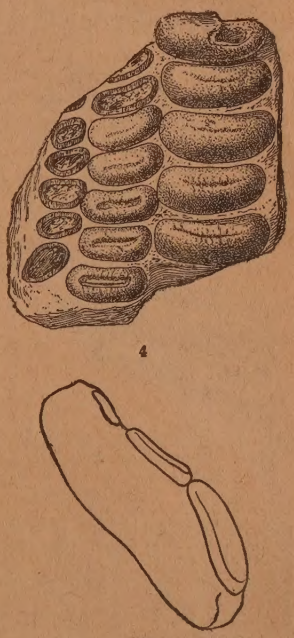

FIG. 4.—CŒLODUS DECATURENSIS. TYPE. PORTION OF LEFT SPLENIAL. NAT. SIZE. 4. SUPERIOR VIEW. 4*a*. POSTERIOR END VIEW, OUTLINE.

[1] Journ. Acad. Nat. Sci. Philadelphia, (2), vol. 9, 1895, p. 447, pl. 20, fig. 10.

figure, it presents some differences of specific value. The teeth are larger and differently proportioned, those of the principal row being relatively narrower transversely, while those of the adjacent outer row are relatively wider and are set less obliquely to those of the principal series. It also differs from the specimens from Kansas, figured by Williston and referred to *C. browni*,[1] in the relatively less wide proportions of the teeth of both series, and in the presence of the well-marked apical pits. Williston's specimen seems to differ markedly from Cope's type in proportions of the teeth, and perhaps should have been refered to a distinct species.

In size and proportions of the tooth rows to each other, the Texas specimen here described quite nearly resembles in a general way the British species, *C. cantabrigiensis* Woodward, from the Cambridge Greensand, but it differs from the latter in the possession of distinct apical pits or grooves and the somewhat wider proportions of all the teeth.

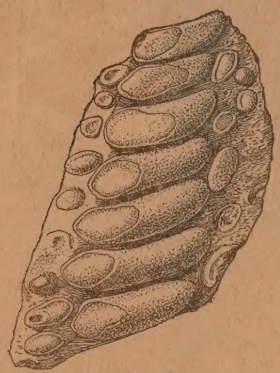

FIG. 5.—ANOMŒODUS LATIDENS. TYPE. PORTION OF LEFT SPLENIAL. NAT. SIZE.

ANOMŒODUS LATIDENS, new species.

Type.—Portion of left splenial containing nearly all the teeth. (Cat. No. 2194, U.S.N.M.) See fig. 5, p. 448.

Locality.—Nine miles west of Tupelo, Mississippi. Probably Cretaceous in age.

Description.—Larger than *A. phasceolus* (Hay),[2] but much smaller than *A. robustus* (Leidy). The teeth of the principal row in general form resemble those of *A. phasceolus*, but present the following characteristic differences: They are relatively broader as compared with their length, more closely set together in the jaw, and are decidedly more expanded anteroposteriorly at their outer ends. Further differences are seen in the teeth of the inner flanking series, which are relatively somewhat smaller and are arranged opposite the interspaces instead of opposite the teeth of the principal series, as in *A. phasceolus*. A peculiarity of this species seems to be the rapid decrease in transverse width from behind forward of the teeth in the principal series. (See fig. 5, p. 448.)

[1] Kansas Univ. Quart., vol. 9, ser. A, 1900, p. 28, pl. 6, fig. 12.

[2] The type of this species was originally described by Leidy under the name *Pycnodus faba* (Proc. Acad. Nat. Sci. Phila., 1872); but in 1899 Hay (Amer. Nat., vol. 33, 1899, p. 788) proposed the name *P. phasceolus* to replace *P. faba*, preoccupied. The generic reference of this form should have been to *Anomœodus* and not to *Pycnodus*.

ANOMŒODUS MISSISSIPPIENSIS, new species.

Type.—Posterior portion of right splenial with four teeth of the principal row and three of the outer flanking row. (Cat. No. 75, U.S.N.M.) See fig. 6, p. 449.

Locality.—Guntown, Mississippi. Probably from deposit of Cretaceous age

Description.—Larger than *A. latidens*. Teeth of principal series less wide as compared with anteroposterior length and more decidedly expanded at their outer ends; teeth of flanking series triangulate, relatively large and opposite the interspaces of the principal series as in *A. latidens*. The teeth of the principal series are closely set together as in the latter species, but are less sharply convex fore and aft and are even more broadly expanded at their outer ends. The teeth are hollow beneath. This character, however, may have no significance peculiar to the species.

FIG. 6.—ANOMŒODUS MISSISSIPPIENSIS. TYPE. PORTION OF RIGHT SPLENIAL. NAT. SIZE.

Comparative measurements of largest tooth in principal series of splenial plates described by Leidy and the two species of this genus here reported are given below.

	Length (antero-posterior).	Breadth (transverse).
	mm.	*mm.*
A. phasceolus (Hay). (Same as *Pycnodus faba* Leidy)	7.4	18.5
A. robustus (Leidy)	9.5	30
A. latidens, new species	5.5	22
A. mississippiensis, new species	7.5	24

Specimens of Pycnodont fishes in American deposits are comparatively rare and consist for the most part of fragments of vomerine and splenial plates on which a few teeth, or in some instances only their bases, have been preserved. Several of the specimens in the United States National Museum collection here described are more than usually complete and for that reason have been carefully and fully figured. The specimens referable to *Microdon* are especially important in that they record for the first time the presence of this genus in deposits of this continent.[1]

Cope once referred to this genus a specimen from the Lower Cretaceous of Texas, which he called *Microdon dumbelli* but afterward assigned to the genus *Mesodon*.[2]

[1] Cope, Proc. Amer. Philos. Soc., 1892, p. 128 (*Microdon dumbelli*).

[2] Journ. Acad. Nat. Sci. Phila. (2), vol. 9, 1895, p. 444. (*Mesodon dumbelli*) *Mesodon* (preoccupied)=*Typodus* according to Hay, Bull. 179, U. S. Geol. Survey, 1902, p. 372.